

Translation

PATENT COOPERATION TREATY

PCT/JP2002/008757



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 310200945971	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2002/008757	International filing date (day/month/year) 29 August 2002 (29.08.2002)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC G06K 19/00, G11C 16/04		
Applicant RENESAS TECHNOLOGY CORP.		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of <u>4</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>14</u> sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 29 August 2002 (29.08.2002)	Date of completion of this report 07 December 2004 (07.12.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2002/008757

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages _____ 1-46 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☒ the claims:
pages _____ 2-9, 12-13, 15-17, 19-27, 30-31 _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____ 1, 10, 11, 14, 18, 28, 29 _____, filed with the letter of _____ 25 August 2003 (25.08.2003)
- ☒ the drawings:
pages _____ 1-46 _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-31	YES
	Claims		NO
Inventive step (IS)	Claims	1-31	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-31	YES
	Claims		NO

2. Citations and explanations

Document 1: JP 2002-164449 A (Hitachi, Ltd.), 7 June 2002, entire text, all drawings,
& US 2002/0074594 A1, & KR 2002/042441 A

Document 2: JP 2001-156275 A (Hitachi, Ltd.), 8 June 2001, paragraph [0049], fig. 17, 18,
& US 6531735 B1, & EP 1085519 A1,
& KR 2001/082522 A

Document 3: WO 2001/084556 A1 (Advanced Technology Materials, Inc.), 8 November 2001, entire text, all drawings, & JP 2003-532968 A,
& US 6400603 B1, & EP 1305805 A1,
& KR 2003/014212 A

Document 4: JP 2000-21183 A (Matsushita Electric Industrial Co., Ltd.), 21 January 2000, entire text, all drawings

Claims 1 to 31

The inventions described in claims 1 to 31 involve an inventive step relative to documents 1 to 3 newly cited in the international preliminary examination report and document 4 cited in the international search report.

Documents 1 to 3 disclose a non-volatile memory cell having a channel region provided in between a first diffusion layer region and a second diffusion layer region

formed on a substrate, an electric charge storage layer provided on the channel region through a first insulating film, a first gate terminal provided on the electric charge storage layer through a second insulating film, and a second gate terminal which is provided on a second channel region adjacent to the first channel region directly under the electric charge storage layer and is connected through the first gate terminal and a third insulating layer, but none of documents 1 to 3 discloses a feature wherein, without modifying the structure of the non-volatile memory cell; a switching circuit is added, and the constitution is divided into a first non-volatile memory cell wherein stored information is erased in first data length units and a second non-volatile memory cell wherein stored information is erased in second data length units; this feature results in an advantageous effect which is not predictable from the disclosures of documents 1 to 3, namely, that the first non-volatile memory is used for storage of an encryption key, and the second non-volatile memory is used for the storage of a program.

Meanwhile, document 4 discloses the provision of an EEPROM array which can erase in units of bytes and a flash memory array, but the structure of the non-volatile memory cells differs from that of the inventions disclosed in documents 1 to 3, and thus, a person skilled in the art would not easily conceive of combining the inventions disclosed in documents 1 to 3 and document 4.